

SECRET

Approved For Release 2004/02/11 : CIA-RDP78B05703A000300010037-2

NPIC/TSSG/RED/SRB-023-70  
23 March 1970

MEMORANDUM FOR THE RECORD

SUBJECT: Agency Activity in Information Display Technology

1. Information display technology is part of a larger field generally referred to as information science. There are many definitions of information science. One of the more inclusive defines information science as the study of those principles which govern the elicitation, transmission, ordering, and depiction of data to achieve human objectives. Information display technology, therefore, is considered an integral part of information science because the display is the link between the environment from which data emerge and the user of such data.

2. The following paragraphs summarize the activities of those offices within the Agency which have been most active in the area of information display technology. Each office has its own parochial problems and has developed or is in the process of developing a system around them. Information, of course, can be displayed for different purposes and in different forms. Capabilities in text manipulation, as well as techniques for manipulating graphical data have been surveyed as a result.

3. The Office of Research & Development, it was discovered, had done the most work in information display technology with the Analysis Division entering the field in 1966. Dividing their achievements into groups by equipment used, four categories resulted.

4. The PFR-3 (Programmable Film Reader/Recorder), made by [redacted] was used by AN/ORD for two information display applications. Although the original purpose of the PFR-3 was image enhancement, it can be programmed for other operations. One application, done for the DDP, consisted of handwriting analysis for personal identification. The other was text editing, using a light pen and a [redacted] tablet. Editing operators, e.g., delete, insert, capitalize, are listed at the bottom of the screen in a menu format to be selected by the light pen. Since more operators are available than are really needed for any one application, the user composes his own editing program by selecting those operators he expects to use and removing those from the screen he does not. Because of a timing problem with the character generator on the PFR-3, text is refreshed on the screen of the CRT at only 10 times/second giving a pronounced flicker. AN/ORD's PFR-3 is one of thirteen made by III at a cost of approximately [redacted] each. Other purchasers include [redacted]

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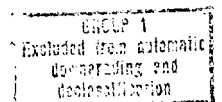
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Declass Review by NGA

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5. The IBM 2260 Display Station was used for another application involving manipulation of text by AN/ORD. Editing was only secondary in this case, however. The major effort was to develop a file search and retrieval system. Files are searched on the basis of keywords and pertinent sentences or paragraphs were returned to the screen of the CRT on the 2260. ORD's IBM 360/50 was the host computer for the 2260's; files were maintained on the IBM 2314 Storage Facility.

6. The IBM 2250 Display Unit Model 1 was used by ORD for four graphical applications. A modified version of IBM's ECAP (Electronic Circuit Analysis Program) was prepared by AN/ORD so TSD/DDP could more easily design electronic circuits. A Chinese-English translator was under development by AN/ORD using the 2250 for [REDACTED]. The Radio Physics Division of ORD has two application programs on the 2250. One is the simulation of a radio controlled vehicle and the other produces graphical solutions of equations relating the weight and size of a balloon as a function of altitude or speed. Again the host computer was ORD's 360/50.

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7. A PDP-7 computer, a DEC 340 CRT display, an EAI 8800 hybrid computer and other equipment were used by AN/ORD for applications involving voice spectrum analysis for the DDP, simulation of vehicle re-entry for FMSAC and pattern recognition.

8. The Office of Computer Services plans on acquiring an IBM 2250 Display Unit Model 1 "sometime in FY-71." The 2250 would be operated on one of OCS's 360/65's. The main application will be cartography for OBG. The Mathematics Branch of the Scientific Applications Division will preview plotted data and digitized data for the world data bank on the screen of the CRT. There will be no need to wait for data to be plotted on the [REDACTED] flat bed plotter, and corrections can be made quickly. An ARDS (Advanced Remote Display Station) was borrowed by OCS from AN/ORD recently to demonstrate the capabilities of the cartography program CAM. The ARDS was operated on OCS's 360/67 which has IBM's Time-Sharing System/360 (TSS/360). TSS/360, and time-sharing in general, is characterized by a time-slicing capability. That is, each user receives a slice of computer time periodically and within a short period of time, all users are responded to in some sense. There were two major outcomes of this experiment. The first was that the software for the ARDS was faulty. There were many indicated transmission errors during the execution of the program. The second was the IBM time-sharing environment was too slow for even this fundamental computer graphics application. It took something on the order of 20 minutes to plot a simple coast line. Another possible application for OCS's 2250 will be a signal analysis program by the Signal Analysis Branch.

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9. A BR-90 Visual Analysis Console made by the [REDACTED]

[REDACTED] is used by OSR for its QUIKTRAK System. The BR-90 is unique among graphical displays in that the CRT has a port in the rear which is used to project slides onto the screen of the CRT. The host computer for the BR-90 is CRS's 360/50. The files associated with the QUIKTRAK system are maintained on a 2314 Storage Facility. QUIKTRAK permits the analyst to retrieve data from a ground forces data base and to display it on the screen of the BR-90. A map is displayed as well using the slide projection feature of the BR-90. This ability to retrieve and manipulate the data gives the analyst a new tool for the solution of his problems. The Intelligence Support Division of OCS is working on a back-up system for QUIKTRAK using the IBM 2260 which will have the same text handling capabilities as the BR-90 but no graphics. Updating of files will be done with the 2260 replacing the present system using OCS's optical page reader.

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[REDACTED]  
SRB/RED/TSSG

Distribution:

Orig - RED Rt & File  
2 - RED/SRB Chronos

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12 Feb 70

Ch, PSC

Ch, AID

(info - Ch, PPDS)

Ch, TSSC JWC

Ch, IEG

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[redacted] tells me that Office of Computer Services has been making considerable progress in developing computer-linked (my words) display systems which will be capable of presenting graphic "renditions" (Hank's words).

- From what Hank says, it sounds like the OCS work may relate to some of our "info tech" objectives.

- TSSC and AID please investigate and let us all know.

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# CENTER ROUTING SLIP

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C/RED/TSSG

25 MAR 1976

TO	INITIALS	DATE	REMARKS
DIRECTOR			
DEP/DIRECTOR			
EXEC/DIRECTOR	2	3/30	
SPECIAL ASST	M	3/30	
ASST TO DIR			
ASST TO DEP/DIR			
CH/PPBS	3	3/27	
DEP CH/PPBS		26/3	
EO/PPBS		26/3	
CH/IEG			
DEP CH/IEG			
EO/IEG			
CH/PSG			
DEP CH/PSG			
EO/PSG			
CH/TSSG	1	3/25	
DEP CH/TSSG			
EO/TSSG			
CH/SSD/TSSG			
PERSONNEL			
LOGISTICS			
TRAINING			
RECORDS MGT			
SECURITY			
FINANCE			
DIR/IAS/DDI			
CH/DIAXX-4			
CH/DIAAP-9			
CH/SPAD			

This is RED's response to the attached request -

John - an answer to your 12 Mar note - its also an elaboration of info presented during our session yesterday.

Thanks -- see that one copy goes to PSG/AID & one to IEG

Done Jan

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*Computers:*

FROM		DATE	
<i>O/Dir</i>		<i>2/12/78</i>	
TO	INITIALS	DATE	REMARKS
DIRECTOR			
DEP/DIRECTOR			
EXEC/DIRECTOR			
SPECIAL ASST			
ASST TO DIR			
HISTORIAN			
CH/PPBS			
DEP CH/PPBS			
EO/PPBS			
CH/IEG			
DEP CH/IEG			
EO/IEG			
CH/PSG			
DEP CH/PSG			
EO/PSG			
CH/TSSG			
DEP CH/TSSG			
EO/TSSG			
CH/SSD/TSSG			
PERSONNEL			
LOGISTICS			
TRAINING			
RECORDS MGT			
SECURITY			
FINANCE			
DIR/IAS/DDI			
CH/DIAXX-4			
CH/DIAAP-9			
CH/SPAD			

*1. JWC 2/16*

*C/RED [Signature]  
action please*

[Redacted Box]

*Rec. 17 Feb.*

*Pls give me a reading on this ASAP since its important in preparation of [Redacted Box] [Redacted Box] plan. Also coordinate with [Redacted Box]*

[Redacted Box] *[Signature]*

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